

REMARKS

Claims 1-15 have been canceled and replaced by claims 16-30 for the sake of clarity. No new matter has been added. Entry of the amendments is respectfully requested.

Martyn Does Not Anticipate Any New Claim

As indicated in the Examiner's comments in relation to Martyn, column 2, lines 50-53 and lines 60-68, Martyn discloses a paraboloid of revolution. This is illustrated in figures 4 and 5 of Martyn, and results in a circular lateral geometry and parabolic vertical geometry. This is further supported by the teaching of WO 9318721 to which Martyn makes reference: "heart valve 7 is the type disclosed in WO 9318721".

In the present application the length in the (XY) plane of the leaflet at each height (Z) defines the amount of material at a point in the leaflet. As more clearly indicated in the new claims, the length of the leaflet between the lateral edges in the (XY) plane, substantially perpendicular to blood flow, measured at any height (Z) along the lateral edges, is defined by a parabolic function wherein the lengths determined by the parabolic function vary in a substantially linear fashion with the height (Z). Defining the length of the leaflet between the lateral edges measured at any height (Z) along the lateral edge in a (XY) plane substantially perpendicular to the blood flow, using a parabolic function such that the length of the leaflet between the lateral edges varies in a substantially linear fashion with the height (Z) provides a leaflet with different geometry from a leaflet described by Martyn. In contrast to the leaflet described by Martyn, a paraboloid of revolution could not be formed using the leaflet geometry defined by the present application. In particular, the function described provides leaflets that, when in a closed position, have a substantially linear section (see page 41, lines 4-8). This is advantageous because it allows leaflets for different sizes of frames to be readily determined without the need for geometric scaling.

The Examiner further considered Martyn to teach a valve prosthesis comprising three leaflets, at least one leaflet configured to increase the length of the free edge of the leaflet relative to the length of the leaflet in the (XY) direction.

The Examiner contended that "flexible" leaflets would stretch and expand upon use, increasing the length of the free edge relative to the length of the leaflet. In the new claims, the length of the free edge of the leaflet is increased relative to the length of the leaflet between the lateral edges in an (XY) plane substantially perpendicular to the blood flow by configuring the free edge as a parabolic shape in the height (Z) of the leaflet. This shaping of the free edge to provide a parabolic shape in the (Z) axis would not arise due to the stretching and expansion of the leaflet, but could be provided to the leaflet by, for example, trimming.

The New Claims Would Not Have Been Obvious

With respect to the rejection under 35 U.S.C. 103 Martyn does not anticipate amended independent claims 16, 18 or 23 and thus the additional features of the claims dependent from those independent claims would not have been obvious if Martyn is combined with one or more of Yang, Moe, Kolff or Cacciola. None of the secondary references supplies the elements lacking in Martyn, as described above.

Since none of the references discloses or suggests using a parabolic function to cause the length of a valve leaflet to vary in a substantially linear fashion, it is evident that the new claims would not have been obvious.

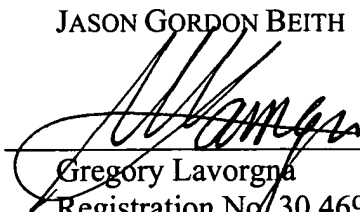
The amended claims are considered to be both novel and inventive for the reasons set forth.

Withdrawal of the rejections, and an early notice of allowance of claims 16-30, is requested.

Respectfully submitted,

JASON GORDON BEITH

By



Gregory Lavorgna
Registration No. 30,469
DRINKER BIDDLE & REATH LLP
Intellectual Property Group
One Logan Square
18th and Cherry Streets
Philadelphia, PA 19103-6996
Tel: (215) 988.3309